

Teacher Notes & Answer Key: Thanksgiving Then and Now, an Energy Comparison

Guided Questions:

1. Plimoth Plantation had fewer than 100 English settlers in 1621. The Wampanoag had a number of small villages in the area, but there was a lot of forest surrounding them. Do you think it was easy or hard to find enough deer, duck, wild turkey and other game meat to feed people in 1621? **According to records from the 1620s, game meat as well as fish and shellfish were abundant in the Plimoth area. Although some settlers died of starvation during colonial times, their starvation had more to do with lack of knowledge about what was edible, and fear of encountering hostile natives while venturing into unfamiliar forests.**
2. Plimoth Plantation grew into the modern-day town of Plymouth, Massachusetts. In 2010 the human population was 56,468. About one-third of the forested areas used by English settlers and Wampanoag in the seventeenth century is gone. Do you think the forest around Plymouth, Massachusetts, could provide enough game meat for the 56,000 people who live in the area? **The forested areas around Plymouth could not sustain the human population today. Fortunately there is plenty of food in America, though. Most Americans buy their meat in a grocery store. The stores obtain meat from ranchers across the country, and sometimes around the world.**
3. Farmers today can increase the amount of food they harvest by using chemical pesticides and fertilizers. Fossil fuels are used to manufacture these chemicals.
 - a. What is a 'fossil' fuel? **(A: Fuels are materials that are broken down to release energy. Most fossil fuels are made by anaerobic decomposition of dead organisms that have been buried.)**
 - b. Where does the energy stored in fossil fuels come from? **(A: Fossil fuels are derived from organisms that were once alive, and the origin of their energy is the sun.)**
 - c. Are fossil fuels renewed as quickly as they are used? **(A: The process of creating fossil fuels takes millions of years. Fossil fuels cannot be regenerated fast enough to keep up with modern-day consumption.)**
4. What impact does the packaging and transportation of food have on the environment? **Packaging and transportation require infrastructure (roads, vehicles, storage facilities, etc.) and an investment of energy (often obtained from fossil fuels).**

Addition Teacher Notes:

1. Fossil fuels are used in modern-day farming of crops for
 - Production of pesticides
 - Production of fertilizers
 - Direct fuel consumption for field operation (gas & diesel fuels to run vehicles & farm machinery)
 - Irrigation (energy is used to pump and apply the irrigation water)
 - Drying (running equipment for drying grains)

For more details, see: <http://www.extension.org/pages/62513/energy-use-and-efficiency-in-pest-control-including-pesticide-production-use-and-management-options#3.Pimentel,%20D.%20>

2. A good reference that compares forested area in the United States over the past 400 years is at [http://www.foresthistory.org/publications/Issues/American Forests.pdf](http://www.foresthistory.org/publications/Issues/American_Forests.pdf).
3. You may want to direct your students to the Global Footprint Network website at <http://www.footprintnetwork.org>. They have a footprint calculator at [http://www.footprintnetwork.org/en/index.php/GFN/page/personal footprint/](http://www.footprintnetwork.org/en/index.php/GFN/page/personal_footprint/).